

# **SIGNAL ANALYSIS INSTRUMENT AND A MODULE FOR A SIGNAL ANALYSIS INSTRUMENT**

## **ABSTRACT**

A signal analysis instrument (10) and a receiver. The signal analysis instrument (10) comprises a computer (12), a phase shift mechanism, a receiver mechanism and data acquisition device. The phase shift mechanism comprises an input (100) for receiving a first high frequency signal; a phase shifter (114) arranged to act on the first high frequency signal to produce a phase-shifted first high frequency signal; and a phase shift controller (116) arranged to control operation of the phase shifter (114) in response to instructions from the computer (12). The receiver mechanism comprises a mixer (104) and a first signal conditioning circuit (106). The mixer (104) is responsive to the phase-shifted first high frequency signal and to a second high frequency signal to produce a mixer output signal. The first signal conditioning circuit (106) is responsive to the mixer output signal to produce a receiver output signal. The data acquisition device (34, 108) is responsive to the receiver output signal and the computer (12) is connected to the data acquisition device to receive data therefrom. The computer (12) is arranged to control the phase shifter (114) and to analyse data from the data acquisition device (34,108) to determine a position of the phase shifter (114) corresponding to the mixer (104) being phase-sensitive, and to determine a conversion ratio of the receiver mechanism. A receiver per se, is also provided comprising the mixer (104) connected to first and second high frequency inputs, the phase shifter (114) provided between the second high frequency input and the mixer (104), a frequency counter circuit (110) to count the frequency of either of the input frequency signals, the receiver controller (116) and the first signal conditioning circuit (106). The receiver controller (116) is connected to the frequency counter circuit (110) to read the frequency count and communicate it to the signal analysis instrument (10).